

GP-303405

ALL-WHEEL DRIVE TRANSFER CASE WITH  
DIFFERENT FRONT AND REAR AXLE RATIOS

## ABSTRACT OF THE DISCLOSURE

A transfer case is provided for a vehicle having front and rear axles. The transfer case includes a planetary gear set with first, second and third members. The first member is continuously connected with the front  
5 axle and the second member is continuously connected with the rear axle. An input shaft is selectively connectable with the first, second or third member. The transfer case provides rear-wheel drive when the second member is connected with the input shaft, all-wheel drive when the third member is connected with the input shaft, and front-wheel drive when the  
10 first member is connected with the input shaft. It is important that the specific members of the planetary gear set be chosen so the absolute value of the torque of the third member is equal to the sum of the absolute value of the torques of the first and second members. If the front axle ratio times the chain ratio is different from the rear axle ratio, three distinct drive ratios will  
15 be available, if the front axle ratio times the chain ratio is identical to the rear axle ratio, front-wheel drive, all-wheel drive, and rear-wheel drive will all be achieved at the same drive ratio.